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1 [Proxy signatures for delegating signing operation](#)



Masahiro Mambo, Keisuke Usuda, Eiji Okamoto

 January 1996 **Proceedings of the 3rd ACM conference on Computer and communications security CCS '96**

Publisher: ACM Press

Full text available: pdf(1.18 MB)

 Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)


2 [A tentative approach to constructing tamper-resistant software](#)



Masahiro Mambo, Takanori Murayama, Eiji Okamoto

 January 1998 **Proceedings of the 1997 workshop on New security paradigms NSPW '97**

Publisher: ACM Press

Full text available: pdf(1.05 MB)

 Additional Information: [full citation](#), [references](#), [index terms](#)


3 [Fast abstract session: network security: Problems on the MR micropayment schemes](#)



Masahiro Mambo, Moises Rosales Salinas, Kazuo Ohta, Noboru Kunihiro

 March 2006 **Proceedings of the 2006 ACM Symposium on Information, computer and communications security ASIACCS '06**

Publisher: ACM Press

Full text available: pdf(204.32 KB)

 Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)


We discuss the security of the MR schemes and especially point out the vulnerability of the MR3 scheme. The probabilistic deposit mechanism utilized in the MR3 scheme contributes to the reduction of the bank's processing cost. However, as shown in our paper, it also decreases the security of the entire scheme.

Keywords: MR schemes, bundle-oriented clearance, commitment, micropayment, security analysis

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Term:	L40 AND (obfuscation) <div style="float: right; text-align: right;"> </div>
Display:	<div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; width: 40px; text-align: center;">50</div> Documents in Display Format: <div style="border: 1px solid black; width: 60px; height: 1.2em; display: flex; align-items: center;">-</div> Starting with Number <div style="border: 1px solid black; width: 40px; text-align: center;">1</div> </div>
Generate: <input type="radio"/> Hit List <input checked="" type="radio"/> Hit Count <input type="radio"/> Side by Side <input type="radio"/> Image	

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side by side		
<i>DB=PGPB,USPT; PLUR=NO; OP=OR</i>		
<u>L42</u> L40 AND (obfuscation)	37	<u>L42</u>
<u>L41</u> L40 AND (CURRENT adj INSTRUCTION)	2	<u>L41</u>
<u>L40</u> L38 or L1	45	<u>L40</u>
<i>DB=PGPB; PLUR=NO; OP=OR</i>		
<u>L39</u> L38 or L1	25	<u>L39</u>
<u>L38</u> L37 or l35 or l34 or l33 or l32 or l31 or l30	25	<u>L38</u>
<u>L37</u> 20060271921	1	<u>L37</u>
<u>L36</u> 2060271921	0	<u>L36</u>
<u>L35</u> 20060218539	1	<u>L35</u>
<u>L34</u> 20060048228	1	<u>L34</u>
<u>L33</u> 20060026430	1	<u>L33</u>
<u>L32</u> 20050102264	1	<u>L32</u>
<u>L31</u> 20050055564	1	<u>L31</u>
<u>L30</u> L29 or l27 or l26 or l25 or l24 or l23 or l22 or l21 or l20 or l19 or l18 or l17	19	<u>L30</u>
<u>L29</u> 20050044359	1	<u>L29</u>

<u>L28</u>	20050044359L27	0	<u>L28</u>
<u>L27</u>	20050021995	1	<u>L27</u>
<u>L26</u>	20050015454	1	<u>L26</u>
<u>L25</u>	20050002053	1	<u>L25</u>
<u>L24</u>	20040260933	1	<u>L24</u>
<u>L23</u>	20040151306	1	<u>L23</u>
<u>L22</u>	20040103404	1	<u>L22</u>
<u>L21</u>	20040039932	1	<u>L21</u>
<u>L20</u>	20040003278	1	<u>L20</u>
<u>L19</u>	20040003264	1	<u>L19</u>
<u>L18</u>	20030233542	1	<u>L18</u>
<u>L17</u>	l15 or l13 or l12 or l11 or l10 or l9 or l8 or l7	8	<u>L17</u>
<u>L16</u>	l13 or l12-l7 or L15	4	<u>L16</u>
<u>L15</u>	20030191938	1	<u>L15</u>
<u>L14</u>	20030191938L13	0	<u>L14</u>
<u>L13</u>	20030188187	1	<u>L13</u>
<u>L12</u>	20030177391	1	<u>L12</u>
<u>L11</u>	20030172270	1	<u>L11</u>
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<u>L9</u>	20030093685	1	<u>L9</u>
<u>L8</u>	20020184618	1	<u>L8</u>
<u>L7</u>	20030039389	1	<u>L7</u>
<u>L6</u>	L5 and 2002	39	<u>L6</u>
<u>L5</u>	(bala and 618)	58	<u>L5</u>
<u>L4</u>	(bala and 184618)	0	<u>L4</u>
<i>DB=USPT; PLUR=NO; OP=OR</i>			
<u>L3</u>	(bala and 618)	81	<u>L3</u>
<u>L2</u>	(bala and 184618)	0	<u>L2</u>
<u>L1</u>	4434436.pn. or 5913064.pn. or 6006328.pn. or 6101606.pn. or 6175925.pn. or 6178509.pn. or 6205550.pn. or 6266416.pn. or 6308256.pn. or 6334189.pn. or 6449721.pn. or 6480959.pn. or 6643775.pn. or 6694435.pn. or 6966002.pn. or 6981217.pn. or 7017188.pn. or 7054.443.pn. or 7065652.pn. or 7080039.pn. or 7124445.pn.	20	<u>L1</u>

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<u>L44</u> L43	38	<u>L44</u>
<u>L43</u> L42 or L41	38	<u>L43</u>
<u>L42</u> L40 AND (obfuscation)	37	<u>L42</u>
<u>L41</u> L40 AND (CURRENT adj INSTRUCTION)	2	<u>L41</u>
<u>L40</u> L38 or L1	45	<u>L40</u>
<i>DB=PGPB; PLUR=NO; OP=OR</i>		
<u>L39</u> L38 or L1	25	<u>L39</u>
<u>L38</u> L37 or l35 or l34 or l33 or l32 or l31 or l30	25	<u>L38</u>
<u>L37</u> 20060271921	1	<u>L37</u>
<u>L36</u> 2060271921	0	<u>L36</u>
<u>L35</u> 20060218539	1	<u>L35</u>
<u>L34</u> 20060048228	1	<u>L34</u>
<u>L33</u> 20060026430	1	<u>L33</u>

<u>L32</u>	20050102264	1	<u>L32</u>
<u>L31</u>	20050055564	1	<u>L31</u>
<u>L30</u>	L29 or l27 or l26 or l25 or l24 or l23 or l22 or l21 or l20 or l19 or l18 or l17	19	<u>L30</u>
<u>L29</u>	20050044359	1	<u>L29</u>
<u>L28</u>	20050044359L27	0	<u>L28</u>
<u>L27</u>	20050021995	1	<u>L27</u>
<u>L26</u>	20050015454	1	<u>L26</u>
<u>L25</u>	20050002053	1	<u>L25</u>
<u>L24</u>	20040260933	1	<u>L24</u>
<u>L23</u>	20040151306	1	<u>L23</u>
<u>L22</u>	20040103404	1	<u>L22</u>
<u>L21</u>	20040039932	1	<u>L21</u>
<u>L20</u>	20040003278	1	<u>L20</u>
<u>L19</u>	20040003264	1	<u>L19</u>
<u>L18</u>	20030233542	1	<u>L18</u>
<u>L17</u>	l15 or l13 or l12 or l11 or l10 or l9 or l8 or l7	8	<u>L17</u>
<u>L16</u>	l13 or l12-l7 or L15	4	<u>L16</u>
<u>L15</u>	20030191938	1	<u>L15</u>
<u>L14</u>	20030191938L13	0	<u>L14</u>
<u>L13</u>	20030188187	1	<u>L13</u>
<u>L12</u>	20030177391	1	<u>L12</u>
<u>L11</u>	20030172270	1	<u>L11</u>
<u>L10</u>	20030123664	1	<u>L10</u>
<u>L9</u>	20030093685	1	<u>L9</u>
<u>L8</u>	20020184618	1	<u>L8</u>
<u>L7</u>	20030039389	1	<u>L7</u>
<u>L6</u>	L5 and 2002	39	<u>L6</u>
<u>L5</u>	(bala and 618)	58	<u>L5</u>
<u>L4</u>	(bala and 184618)	0	<u>L4</u>
<i>DB=USPT; PLUR=NO; OP=OR</i>			
<u>L3</u>	(bala and 618)	81	<u>L3</u>
<u>L2</u>	(bala and 184618)	0	<u>L2</u>
<u>L1</u>	4434436.pn. or 5913064.pn. or 6006328.pn. or 6101606.pn. or 6175925.pn. or 6178509.pn. or 6205550.pn. or 6266416.pn. or 6308256.pn. or 6334189.pn. or 6449721.pn. or 6480959.pn. or 6643775.pn. or 6694435.pn. or 6966002.pn. or 6981217.pn. or 7017188.pn. or 7054.443.pn. or 7065652.pn. or 7080039.pn. or 7124445.pn.	20	<u>L1</u>

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☐ 1. Document ID: US 20060271921 A1

L44: Entry 1 of 38

File: PGPB

Nov 30, 2006

PGPUB-DOCUMENT-NUMBER: 20060271921

PGPUB-FILING-TYPE:

DOCUMENT-IDENTIFIER: US 20060271921 A1

TITLE: PROTECTING SOFTWARE FROM UNAUTHORIZED USE BY CONVERTING SOURCE CODE MODULES TO BYTE CODES

PUBLICATION-DATE: November 30, 2006

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Cronce; Paul A.	San Jose	CA	US
Fontana; Joseph	San Jose	CA	US
Anderson; Eric C.	San Jose	CA	US

US-CL-CURRENT: 717/151

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMIC	Draw. D
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☐ 2. Document ID: US 20060218539 A1

L44: Entry 2 of 38

File: PGPB

Sep 28, 2006

PGPUB-DOCUMENT-NUMBER: 20060218539

PGPUB-FILING-TYPE:

DOCUMENT-IDENTIFIER: US 20060218539 A1

TITLE: Code obfuscation and controlling a processor by emulation

PUBLICATION-DATE: September 28, 2006

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Stiemens; Alan Walter	Berkshire		GB
Gray; Martin Clive	Berkshire		GB
Sulley; Christopher Edward	West Yorkshire		GB

US-CL-CURRENT: 717/140

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KM/C	Draw D
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☐ 3. Document ID: US 20060048228 A1

L44: Entry 3 of 38

File: PGPB

Mar 2, 2006

PGPUB-DOCUMENT-NUMBER: 20060048228

PGPUB-FILING-TYPE:

DOCUMENT-IDENTIFIER: US 20060048228 A1

TITLE: Communication system and security assurance device

PUBLICATION-DATE: March 2, 2006

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Takemori; Keisuke	Kamifukuoka-shi		JP
Miyake; Yutaka	Kamifukuoka-shi		JP
Tanaka; Toshiaki	Kamifukuoka-shi		JP
Isohara; Takamasa	Tokyo		JP
Sasase; Iwao	Yokohama-shi		JP

US-CL-CURRENT: 726/22; 713/168, 726/25

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KM/C	Draw D
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☐ 4. Document ID: US 20060026430 A1

L44: Entry 4 of 38

File: PGPB

Feb 2, 2006

PGPUB-DOCUMENT-NUMBER: 20060026430

PGPUB-FILING-TYPE:

DOCUMENT-IDENTIFIER: US 20060026430 A1

TITLE: Protecting mobile code against malicious hosts cross references to related applications

PUBLICATION-DATE: February 2, 2006

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Luo; Chenghui	Warwick	RI	US

US-CL-CURRENT: 713/176; 713/181

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KM/C	Draw D
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☐ 5. Document ID: US 20050102264 A1

L44: Entry 5 of 38

File: PGPB

May 12, 2005

PGPUB-DOCUMENT-NUMBER: 20050102264

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20050102264 A1

TITLE: Method and system for maintaining secure data input and output

PUBLICATION-DATE: May 12, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Nason, D. David	Bainbridge Island	WA	US
Kaan, Carson	Seattle	WA	US
Easton, John E.	Vashon	WA	US
Smith, Jason M.	Seattle	WA	US
Painter, John A.	Everett	WA	US
Heaton, William J.	Everett	WA	US

US-CL-CURRENT: 707/1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 6. Document ID: US 20050055564 A1

L44: Entry 6 of 38

File: PGPB

Mar 10, 2005

PGPUB-DOCUMENT-NUMBER: 20050055564

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20050055564 A1

TITLE: Object model document for obfuscating object model therein

PUBLICATION-DATE: March 10, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Haselden, J.Kirk	Issaquah	WA	US
Ivanov, Sergei	Issaquah	WA	US

US-CL-CURRENT: 726/26; 715/513

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 7. Document ID: US 20050044359 A1

L44: Entry 7 of 38

File: PGPB

Feb 24, 2005

PGPUB-DOCUMENT-NUMBER: 20050044359
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20050044359 A1

TITLE: Anti-piracy software protection system and method

PUBLICATION-DATE: February 24, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Eriksson, Thomas	Balsta		SE
Wenzel, Jorgen	Isafjordsgatan		SE
Karlsson, Tobias	Isafjordsgatan		SE

US-CL-CURRENT: 713/165

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 8. Document ID: US 20050021995 A1

L44: Entry 8 of 38

File: PGPB

Jan 27, 2005

PGPUB-DOCUMENT-NUMBER: 20050021995
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20050021995 A1

TITLE: Application rights management in a mobile environment

PUBLICATION-DATE: January 27, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Lal, Vishal	Agra		IN
Singhal, Umesh	Bangalore		IN
Chakravorthy, Jyothirmoy	Bangalore		IN
Reddy, Rajesh T.S	Bangalore		IN

US-CL-CURRENT: 726/4; 705/59

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 9. Document ID: US 20050015454 A1

L44: Entry 9 of 38

File: PGPB

Jan 20, 2005

PGPUB-DOCUMENT-NUMBER: 20050015454
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20050015454 A1

TITLE: Obfuscation of spam filter

PUBLICATION-DATE: January 20, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Goodman, Joshua T.	Redmond	WA	US
Rounthwaite, Robert L.	Fall City	WA	US
Platt, John C.	Redmond	WA	US

US-CL-CURRENT: 709/207

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMIC	Draw. De
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☐ 10. Document ID: US 20050002053 A1

L44: Entry 10 of 38

File: PGPB

Jan 6, 2005

PGPUB-DOCUMENT-NUMBER: 20050002053

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20050002053 A1

TITLE: System and method for preventing comprehension of a printed document

PUBLICATION-DATE: January 6, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Meador, Jack L.	Boise	ID	US
Luman, David J.	Meridian	ID	US

US-CL-CURRENT: 358/1.14; 358/1.1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMIC	Draw. De
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☐ 11. Document ID: US 20040260933 A1

L44: Entry 11 of 38

File: PGPB

Dec 23, 2004

PGPUB-DOCUMENT-NUMBER: 20040260933

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040260933 A1

TITLE: Method of preventing tampering of program by using unique number, method of upgrading obfuscated program, and apparatus thereof

PUBLICATION-DATE: December 23, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Lee, Jae-heung	Suwon-si		KR

US-CL-CURRENT: 713/193

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw. De
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☐ 12. Document ID: US 20040151306 A1

L44: Entry 12 of 38

File: PGPB

Aug 5, 2004

PGPUB-DOCUMENT-NUMBER: 20040151306

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040151306 A1

TITLE: Method of obfuscating computer instruction streams

PUBLICATION-DATE: August 5, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Kiddy, Raymond R.	Sunnyvale	CA	US

US-CL-CURRENT: 380/28

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw. De
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☐ 13. Document ID: US 20040103404 A1

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File: PGPB

May 27, 2004

PGPUB-DOCUMENT-NUMBER: 20040103404

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040103404 A1TITLE: Class coalescence for obfuscation of object-oriented software

PUBLICATION-DATE: May 27, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Naumovich, Gleb	New York	NY	US
Yalcin, Ezgi	Brooklyn	NY	US
Memon, Nasir D.	Holmdel	NJ	US
Yu, Hong Heather	West Windsor	NJ	US
Sosonkin, Mikhail	Brooklyn	NY	US

US-CL-CURRENT: 717/136; 717/108, 717/116

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw. De
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☐ 14. Document ID: US 20040039932 A1

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File: PGPB

Feb 26, 2004

PGPUB-DOCUMENT-NUMBER: 20040039932

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040039932 A1

TITLE: Apparatus, system and method for securing digital documents in a digital appliance

PUBLICATION-DATE: February 26, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Elazar, Gidon	Tsur-Igal		IL
Harkabi, Dan	Lachish		IL
Weingarten, Nehemiah	Ramat Gan		IL

US-CL-CURRENT: 726/26; 705/59

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw. D.
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☐ 15. Document ID: US 20040003278 A1

L44: Entry 15 of 38

File: PGPB

Jan 1, 2004

PGPUB-DOCUMENT-NUMBER: 20040003278

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040003278 A1

TITLE: Secure and opaque type library providing secure data protection of variables

PUBLICATION-DATE: January 1, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Chen, Yuqun	Bellevue	WA	US
Venkatesan, Ramarathnam	Redmond	WA	US
Jakubowski, Mariusz H.	Bellevue	WA	US

US-CL-CURRENT: 726/21

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw. D.
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☐ 16. Document ID: US 20040003264 A1

L44: Entry 16 of 38

File: PGPB

Jan 1, 2004

PGPUB-DOCUMENT-NUMBER: 20040003264

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040003264 A1

TITLE: System and method for obfuscating code using instruction replacement scheme

PUBLICATION-DATE: January 1, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Zeman, Pavel	Kirkland	WA	US
Marr, Michael D.	Sammamish	WA	US

US-CL-CURRENT: 713/190

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 17. Document ID: US 20030233542 A1

L44: Entry 17 of 38

File: PGPB

Dec 18, 2003

PGPUB-DOCUMENT-NUMBER: 20030233542

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030233542 A1

TITLE: Selectively disclosable digital certificates

PUBLICATION-DATE: December 18, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Benaloh, Josh D.	Redmond	WA	US

US-CL-CURRENT: 713/156

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 18. Document ID: US 20030191938 A1

L44: Entry 18 of 38

File: PGPB

Oct 9, 2003

PGPUB-DOCUMENT-NUMBER: 20030191938

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030191938 A1

TITLE: Computer security system and method

PUBLICATION-DATE: October 9, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Woods, Stephen Robert	Hampshire	MA	GB

Charette, Philip Carl

Ipswich

US

US-CL-CURRENT: 713/165

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMOC	Draw. De
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☐ 19. Document ID: US 20030188187 A1

L44: Entry 19 of 38

File: PGPB

Oct 2, 2003

PGPUB-DOCUMENT-NUMBER: 20030188187

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030188187 A1TITLE: Obfuscated source program, source program conversion method and apparatus,
and source conversion program

PUBLICATION-DATE: October 2, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Uchida, Kaoru	Tokyo		JP

US-CL-CURRENT: 726/26

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMOC	Draw. De
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☐ 20. Document ID: US 20030177391 A1

L44: Entry 20 of 38

File: PGPB

Sep 18, 2003

PGPUB-DOCUMENT-NUMBER: 20030177391

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030177391 A1

TITLE: Authenticated and metered flow control method

PUBLICATION-DATE: September 18, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Ofek, Yoram	Riverdale	NY	US
Baldi, Mario	Cuneo		IT

US-CL-CURRENT: 726/4; 713/176

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMOC	Draw. De
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☐ 21. Document ID: US 20030172270 A1

L44: Entry 21 of 38

File: PGPB

Sep 11, 2003

PGPUB-DOCUMENT-NUMBER: 20030172270

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030172270 A1

TITLE: Method and system for enabling content security in a distributed system

PUBLICATION-DATE: September 11, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Newcombe, Christopher Richard	Kirkland	WA	US
Jones, Paul David	Renton	WA	US
Ellis, Richard Donald	Carnation	WA	US
Birum, Derrick Jason	Duvall	WA	US

US-CL-CURRENT: 713/168

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMMC	Draw D
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☐ 22. Document ID: US 20030093685 A1

L44: Entry 22 of 38

File: PGPB

May 15, 2003

PGPUB-DOCUMENT-NUMBER: 20030093685

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030093685 A1TITLE: Method and system for obfuscation of computer program execution flow to increase computer program security

PUBLICATION-DATE: May 15, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Tobin, John P.E.	San Jose	CA	US

US-CL-CURRENT: 713/190

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMMC	Draw D
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☐ 23. Document ID: US 7124445 B2

L44: Entry 23 of 38

File: USPT

Oct 17, 2006

US-PAT-NO: 7124445

DOCUMENT-IDENTIFIER: US 7124445 B2

TITLE: Protecting software from unauthorized use by converting source code modules

to byte codes

DATE-ISSUED: October 17, 2006

PRIOR-PUBLICATION:

DOC-ID	DATE
US 20030236986 A1	December 25, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Cronce; Paul A.	San Jose	CA		US
Fontana; Joseph M.	San Jose	CA		US
Anderson; Eric C.	San Jose	CA		US

US-CL-CURRENT: 726/26; 713/189, 717/110, 717/136, 717/139

ABSTRACT:

A method for anti-piracy protection of a software application by obfuscation of the execution of portions of the applications code is described. The method comprises providing a language specification and library to implement the functions of the language, providing a compiler to translate the language into byte codes, and providing an interpreter to execute the byte codes using the library. The method further comprises providing the language specifications, library, compiler, interpreter, and instructions to a software publisher, wherein the software publisher embeds the library and interpreter in the application to be protected, and selects and prepares application code segments for processing into byte codes by the compiler. The application is then executed using the embedded library and interpreter, wherein the execution of the application is obfuscated by the use of byte codes. A further aspect of the invention is to provide the compiler, interpreter, and library functions on a secure server, giving the language specification and only limited instructions to the publisher for preparation of the application for protection processing, for the purpose of preventing a hacker from studying the operation of the toolset.

9 Claims, 15 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 13

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Drawings
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☐ 24. Document ID: US 7080039 B1

L44: Entry 24 of 38

File: USPT

Jul 18, 2006

US-PAT-NO: 7080039

DOCUMENT-IDENTIFIER: US 7080039 B1

TITLE: Associating content with households using smart cards

DATE-ISSUED: July 18, 2006

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Marsh; David J	Redmond	WA	98053	US

US-CL-CURRENT: 705/51; 380/201, 380/228, 705/52, 705/64, 705/65

ABSTRACT:

Media content is associated with households using smart cards. The media content is encrypted and/or decrypted based on a household identifier corresponding to a smart card. Media content is encrypted such that it can only be decrypted with the same (or similar) smart card. Thus, the encrypted media content can be safely transferred within a computing device, stored, transferred to other computing devices, etc. because it cannot be decrypted without the smart card.

56 Claims, 8 Drawing figures

Exemplary Claim Number: 24

Number of Drawing Sheets: 7

Full	Title	Citation	Front	Review	Classification	Date	Reference	Exportable	Exportable	Claims	KIMC	Drawing Data
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☐ 25. Document ID: US 7065652 B1

L44: Entry 25 of 38

File: USPT

Jun 20, 2006

US-PAT-NO: 7065652

DOCUMENT-IDENTIFIER: US 7065652 B1

TITLE: System for obfuscating computer code upon disassembly

DATE-ISSUED: June 20, 2006

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Xu; Bin	Sunnyvale	CA		US
Sesma; Jim	White City	OR		US
Freeman; Robert	Orange County	CA		US
Li; Weijun	Sunnyvale	CA		US

US-CL-CURRENT: 713/190; 726/33

ABSTRACT:

A system for preventing accurate disassembly of computer code. Such code masking, referred to as "obfuscation," is useful to prevent unwanted parties from making copies of an original author's software, obtaining valuable information from the software for purposes of breaking into a program, stealing secrets, making derivative works, etc. The present invention uses assembly-language instructions so as to confuse the disassembler to produce results that are not an accurate representation of the original assembly code. In one embodiment, a method is provided where an interrupt, or software exception instruction, is used to mask several subsequent instructions. The instruction used can be any instruction that

causes the disassembler to assume that one or more subsequent words, or bytes, are associated with the instruction. The method, instead, jumps directly to the bytes assumed associated with the instruction and executes those bytes for a different purpose. A preferred embodiment works with a popular Microsoft "ASM" assembler language and "DASM" disassembler. The instructions used to achieve the obfuscation include "INT" instructions. Using this approach up to 17 bytes of obfuscation can be achieved with five instructions. Each instruction remains obfuscated until executed and returns to an obfuscated state afterwards.

1 Claims, 2 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	FIGS	Draw D
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☐ 26. Document ID: US 7017188 B1

L44: Entry 26 of 38

File: USPT

Mar 21, 2006

US-PAT-NO: 7017188
DOCUMENT-IDENTIFIER: US 7017188 B1

TITLE: Method and apparatus for secure content delivery over broadband access networks

DATE-ISSUED: March 21, 2006

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Schmeidler; Yonah	Cambridge	MA		US
Atkins; Derek	Somerville	MA		US
Eichin; Mark W.	Somerville	MA		US
Rostcheck; David J.	Arlington	MA		US

US-CL-CURRENT: 726/26; 705/57, 705/59, 707/1, 709/203, 726/2, 726/6

ABSTRACT:

A system for secure delivery of on-demand content over broadband access networks utilizes a pair of servers and security mechanisms to prevent client processes from accessing and executing content without authorization. A plurality of encrypted titles are stored on a content server coupled to the network. An access server also coupled to the network contains the network addresses of the titles and various keying and authorization data necessary to decrypt and execute a title. A client application executing on a user's local computer system is required to retrieve the address, keying and authorization data from the access server before retrieving a title from the content server and enabling execution of the title on a user's local computer system.

39 Claims, 23 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 22

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 27. Document ID: US 6981217 B1

L44: Entry 27 of 38

File: USPT

Dec 27, 2005

US-PAT-NO: 6981217

DOCUMENT-IDENTIFIER: US 6981217 B1

TITLE: System and method of obfuscating data

DATE-ISSUED: December 27, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Knauft; Christopher L.	San Diego	CA		
Franklin; Martin	San Diego	CA		
Benson; Greg	La Jolla	CA		

US-CL-CURRENT: 715/531; 707/1, 707/2, 707/3

ABSTRACT:

A system and method of generating index information for electronic documents. The system includes a client, one or more information retrieval (IR) engines, such as a search engine, which are each in communication with each other via a network. In one embodiment of the invention, the server maintains a plurality of data objects that are protected by digital rights management (DRM) software. Upon receiving a network request from one of the IR systems, the server dynamically generates an electronic document that provides index information that is associated with one of the data objects. In one embodiment of the invention, the server dynamically generates the contents of the electronic document based upon the indexing characteristics of the IR system. Furthermore, upon receiving a network request from one of the client, the server determines whether the client is authorized to access the data object that is associated with the network request. If the client is authorized to access the data object, the server transmits the data object to the user. Alternatively, if the client is not authorized to access the data object, the server dynamically prepares instructions to the client, the instructions describing additional steps the user at the client may perform to get authorized to access the data object.

12 Claims, 17 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 14

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 28. Document ID: US 6694435 B2

L44: Entry 28 of 38

File: USPT

Feb 17, 2004

US-PAT-NO: 6694435
DOCUMENT-IDENTIFIER: US 6694435 B2

TITLE: Method of obfuscating computer instruction streams

DATE-ISSUED: February 17, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kiddy; Raymond R.	Sunnyvale	CA		

US-CL-CURRENT: 713/189; 726/26

ABSTRACT:

Methods and apparatuses for obfuscating computer instruction streams. In one aspect of the invention, an exemplary method includes breaking each of at least two operative instruction streams into a plurality of parts and interleaving the parts into a new instruction stream. In another aspect of the invention, an exemplary method includes breaking each of at least two operative instruction streams into a plurality of parts and interleaving the parts with obfuscation codes into a new instruction stream. The obfuscation codes interrelate the parts from different instruction streams to prevent reversal of interleaving.

59 Claims, 11 Drawing figures
Exemplary Claim Number: 31
Number of Drawing Sheets: 11

Full	Title	Citation	Front	Review	Classification	Date	Reference	Examiner	Interview	Claims	KOMC	Draw D
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☐ 29. Document ID: US 6643775 B1

L44: Entry 29 of 38

File: USPT

Nov 4, 2003

US-PAT-NO: 6643775
DOCUMENT-IDENTIFIER: US 6643775 B1

TITLE: Use of code obfuscation to inhibit generation of non-use-restricted versions of copy protected software applications

DATE-ISSUED: November 4, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Granger; Mark J.	Azusa	CA		
Smith; Cyrus E.	Monrovia	CA		
Hoffman; Matthew I.	South Pasadena	CA		

US-CL-CURRENT: 713/190; 380/255, 380/268, 726/26

ABSTRACT:

Three methods are disclosed for protecting software applications from unauthorized distribution and use (piracy). The first method involves using values generated by a conventional ESD (Electronic Security Device) to encrypt and/or decrypt user data (such as a file) that is generated and used by the application. In a preferred embodiment, the user data is encrypted (such as during a write to memory) using values returned by the ESD, and the user data is later decrypted using like values returned by a software-implemented ESD simulator. The second and third methods involve the use of special development tools that make the task of analyzing the application's copy protection code (such as the code used to encrypt and/or decrypt user data) significantly more difficult. Specifically, the second method involves using pseudocode to implement some or all of the application's copy protection functions. The pseudocode for a given function is generated (preferably in encrypted form) from actual code using a special development tool, and is then imbedded within the application together with a corresponding pseudocode interpreter. The interpreter fetches, decrypts and executes the pseudocode when the function is called. Because no disassemblers or other development tools exist for analyzing the pseudocode, the task of analyzing the copy protection functions becomes significantly more complex. The third method involves the use of a special obfuscation tool to convert the code for selected copy-protection functions into unnecessarily long, inefficient sequences of machine code. In one implementation of the obfuscation tool, the developer can control the quantity of code that is generated by specifying one or more control parameters. The three methods can also be used to protect software license management systems from security attacks.

48 Claims, 14 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 11

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	Keywords	Drawings
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☐ 30. Document ID: US 6480959 B1

L44: Entry 30 of 38

File: USPT

Nov 12, 2002

US-PAT-NO: 6480959

DOCUMENT-IDENTIFIER: US 6480959 B1

TITLE: Software system and associated methods for controlling the use of computer programs

DATE-ISSUED: November 12, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Granger; Mark J.	Azusa	CA		
Smith; Cyrus E.	Monrovia	CA		
Hoffman; Matthew I.	South Pasadena	CA		

US-CL-CURRENT: 713/189; 726/29, 726/32

ABSTRACT:

Three methods are disclosed for protecting software applications from unauthorized distribution and use (piracy). The first method involves using values generated by

a conventional ESD (Electronic Security Device) to encrypt and/or decrypt user data (such as a file) that is generated and used by the application. In a preferred embodiment, the user data is encrypted (such as during a write to memory) using values returned by the ESD, and the user data is later decrypted using like values returned by a software-implemented ESD simulator. The second and third methods involve the use of special development tools that make the task of analyzing the application's copy protection code (such as the code used to encrypt and/or decrypt user data) significantly more difficult. Specifically, the second method involves using pseudocode to implement some or all of the application's copy protection functions. The pseudocode for a given function is generated (preferably in encrypted form) from actual code using a special development tool, and is then imbedded within the application together with a corresponding pseudocode interpreter. The interpreter fetches, decrypts and executes the pseudocode when the function is called. Because no disassemblers or other development tools exist for analyzing the pseudocode, the task of analyzing the copy protection functions becomes significantly more complex. The third method involves the use of a special obfuscation tool to convert the code for selected copy-protection functions into unnecessarily long, inefficient sequences of machine code. In one implementation of the obfuscation tool, the developer can control the quantity of code that is generated by specifying one or more control parameters. The three methods can also be used to protect software license management systems from security attacks.

50 Claims, 14 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 11

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Parameters	Claims	KMMC	Draw D
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☐ 31. Document ID: US 6334189 B1

L44: Entry 31 of 38

File: USPT

Dec 25, 2001

US-PAT-NO: 6334189

DOCUMENT-IDENTIFIER: US 6334189 B1

TITLE: Use of pseudocode to protect software from unauthorized use

DATE-ISSUED: December 25, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Granger; Mark J.	Azusa	CA		
Smith; Cyrus E.	Monrovia	CA		
Hoffman; Matthew I.	South Pasadena	CA		

US-CL-CURRENT: 726/26; 380/255, 380/268

ABSTRACT:

Three methods are disclosed for protecting software applications from unauthorized distribution and use (piracy). The first method involves using values generated by a conventional ESD (Electronic Security Device) to encrypt and/or decrypt user data (such as a file) that is generated and used by the application. In a preferred embodiment, the user data is encrypted (such as during a write to memory) using

values returned by the ESD, and the user data is later decrypted using like values returned by a software-implemented ESD simulator. The second and third methods involve the use of special development tools that make the task of analyzing the application's copy protection code (such as the code used to encrypt and/or decrypt user data) significantly more difficult. Specifically, the second method involves using pseudocode to implement some or all of the application's copy protection functions. The pseudocode for a given function is generated (preferably in encrypted form) from actual code using a special development tool, and is then imbedded within the application together with a corresponding pseudocode interpreter. The interpreter fetches, decrypts and executes the pseudocode when the function is called. Because no disassemblers or other development tools exist for analyzing the pseudocode, the task of analyzing the copy protection functions becomes significantly more complex. The third method involves the use of a special obfuscation tool to convert the code for selected copy-protection functions into unnecessarily long, inefficient sequences of machine code. In one implementation of the obfuscation tool, the developer can control the quantity of code that is generated by specifying one or more control parameters. The three methods can also be used to protect software license management systems from security attacks.

30 Claims, 14 Drawing figures
 Exemplary Claim Number: 1
 Number of Drawing Sheets: 11

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequence	Attachment	Claims	K00C	Draw D
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☐ 32. Document ID: US 6308256 B1

L44: Entry 32 of 38

File: USPT

Oct 23, 2001

US-PAT-NO: 6308256

DOCUMENT-IDENTIFIER: US 6308256 B1

TITLE: Secure execution of program instructions provided by network interactions with processor

DATE-ISSUED: October 23, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Folmsbee, Alan	Mt. Hamilton	CA		

US-CL-CURRENT: 712/209; 712/208, 712/226, 712/248, 712/37, 713/190

ABSTRACT:

A CPU is provided with an ability to modify its operation in accordance with an encryption key. When a program is compiled, the program is modified in order that execution may be performed with the CPU with its operation modified. As a result, it is unnecessary to decrypt the program into standard op codes prior to execution. The keyed program operation permits secure transfer of program data through open channels such as the Internet. A programmable instruction decoder programmable decodes encrypted instruction op codes, without decrypting them into standard op codes. Logic is used to accomplish network handshaking. The network handshaking further used to provide additional key information for continued operation the CPU.

43 Claims, 12 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 11

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 33. Document ID: US 6205550 B1

L44: Entry 33 of 38

File: USPT

Mar 20, 2001

US-PAT-NO: 6205550
DOCUMENT-IDENTIFIER: US 6205550 B1

TITLE: Tamper resistant methods and apparatus

DATE-ISSUED: March 20, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Nardone; Joseph M.	Portland	OR		
Mangold; Richard P.	Forest Grove	OR		
Pfotenhauer; Jody L.	Tempe	AZ		
Shippy; Keith L.	Chandler	AZ		
Aucsmith; David W.	Portland	OR		
Maliszewski; Richard L.	Forest Grove	OR		
Graunke; Gary L.	Beaverton	OR		

US-CL-CURRENT: 726/22; 380/30, 705/52

ABSTRACT:

In one apparatus, a number of obfuscated programming instructions are equipped to self-verify whether execution of the obfuscated programming instructions is being observed. In another apparatus, a number of obfuscated programming instruction are equipped to determine whether the apparatus is being operated in a mode that supports single step execution of the obfuscated programming instructions. In yet another apparatus, a number of obfuscated programming instruction are equipped to verify whether an amount of elapsed execution time has exceeded a threshold. In yet another apparatus, a first and a second group of obfuscated programming instruction are provided to implement a first and a second tamper resistant technique respectively, with the first and the second group of programming instructions sharing a storage location for a first and a second key value corresponding to the first and the second tamper resistant technique.

32 Claims, 9 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 9

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 34. Document ID: US 6178509 B1

L44: Entry 34 of 38

File: USPT

Jan 23, 2001

US-PAT-NO: 6178509

DOCUMENT-IDENTIFIER: US 6178509 B1

**** See image for Certificate of Correction ****

TITLE: Tamper resistant methods and apparatus

DATE-ISSUED: January 23, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Nardone; Joseph M.	Portland	OR		
Mangold; Richard T.	Forest Grove	OR		
Pfotenhauer; Jody L.	Tempe	AZ		
Shippy; Keith L.	Chandler	AZ		
Aucsmith; David W.	Portland	OR		
Maliszewski; Richard L.	Forest Grove	OR		
Graunke; Gary L.	Beaverton	OR		

US-CL-CURRENT: 726/22; 713/194

ABSTRACT:

In one apparatus, a number of obfuscated programming instructions is provided to perform integrity verification on a number of other plain text programming instructions. In another apparatus, a number of obfuscated programming instructions is provided to self-verify an invocation of the obfuscated programming instructions is not originated from an intruder.

19 Claims, 9 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 9

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RMIC	Drawings
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☐ 35. Document ID: US 6175925 B1

L44: Entry 35 of 38

File: USPT

Jan 16, 2001

US-PAT-NO: 6175925

DOCUMENT-IDENTIFIER: US 6175925 B1

TITLE: Tamper resistant player for scrambled contents

DATE-ISSUED: January 16, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
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Nardone; Joseph M.	Portland	OR
Mangold; Richard P.	Forest Grove	OR
Pfotenhauer; Jody L.	Tempe	AZ
Shippy; Keith L.	Chandler	AZ
Aucsmith; David W.	Portland	OR
Maliszewski; Richard L.	Forest Grove	OR
Graunke; Gary L.	Beaverton	OR

US-CL-CURRENT: 726/22; 713/190, 713/194

ABSTRACT:

In one apparatus, a group of plain text and obfuscated cells of programming instructions is provided to implement a descrambler that descrambles scrambled content to generate descrambled content. In another apparatus, a group of plain text and obfuscated cells of programming instructions is provided to implement an authenticator that provides appropriate authentication challenges to a scrambled content provider, and generates appropriate authentication responses to authentication challenges from the scrambled content provider. In yet another apparatus, a group of plain text and obfuscated cells of programming instructions is provided to implement an integrity verifier that performs integrity verification on a decoder. In yet another apparatus, a group of plain text and obfuscated cells of programming instructions is provided to implement a secrets holder that holds a number of secrets associated with playing scrambled contents.

31 Claims, 9 Drawing figures

Exemplary Claim Number: 12

Number of Drawing Sheets: 9

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KMIC	Draw. De
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☐ 36. Document ID: US 6006328 A

L44: Entry 36 of 38

File: USPT

Dec 21, 1999

US-PAT-NO: 6006328

DOCUMENT-IDENTIFIER: US 6006328 A

TITLE: Computer software authentication, protection, and security system

DATE-ISSUED: December 21, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Drake; Christopher Nathan	North Sydney			AU

US-CL-CURRENT: 726/23; 713/188, 713/190

ABSTRACT:

A software-based computer security enhancing process and graphical software-authenticity method, and a method to apply aspects of the two are disclosed. The

process provides protection against certain attacks on executable software by persons or other software used on the computer. Software using this process is protected against eavesdropping (the monitoring of software, applications, the operating system, disks, keyboard, or other devices to record (steal) identification, authentication or sensitive data such as passwords, User-ID's, credit-card numbers and expiry dates, bank account and PIN numbers, smart-card data, biometric information (for example: the data comprising a retina or fingerprint scan), or encryption keys), local and remote tampering (altering software to remove, disable, or compromise security features of the altered software) examination (viewing the executable program, usually with the intent of devising security attacks upon it), tracing (observing the operating of an executable program step-by-step), and spoofing (substituting counterfeit software to emulate the interface of authentic software in order to subvert security) by rogues (eg: Trojan Horses, Hackers, Viruses, Terminate-and-stay-resident programs, co-resident software, multi-threaded operating system processes, Worms, Spoof programs, key-press password capturers, macro recorders, sniffers, and other software or subversions). Aspects include executable encryption, obfuscation, anti-tracing, anti-tamper & self-verification, runtime self-monitoring, and audiovisual authentication (math, encryption, and graphics based method permitting users to immediately recognise the authenticity and integrity of software). FIG. 5 in the specification depicts the many components and their interaction.

21 Claims, 13 Drawing figures

Exemplary Claim Number: 2

Number of Drawing Sheets: 6

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw D
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☐ 37. Document ID: US 5913064 A

L44: Entry 37 of 38

File: USPT

Jun 15, 1999

US-PAT-NO: 5913064

DOCUMENT-IDENTIFIER: US 5913064 A

**** See image for Certificate of Correction ****

TITLE: Method for generating instructions for an object-oriented processor

DATE-ISSUED: June 15, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Chen; Chi-Chung K.	San Bruno	CA		

US-CL-CURRENT: 717/108; 703/13, 717/104, 718/1, 719/315, 719/331

ABSTRACT:

A method for generating code for an object-oriented processor is disclosed. An instruction table is initialized to include a plurality of instructions for an object-oriented processor, each of the plurality of instructions having a set of operands and an operand type for each of the set of operands. In addition, a weighting table is initialized to include a set of the plurality of instructions and a weight for each of the set of the plurality of instructions, the weight

indicating frequency of generation for a particular instruction. A class hierarchy is created, the class hierarchy having a plurality of classes stored in a tree data structure, each of the plurality of classes having a set of fields and a set of methods, each of the plurality of classes, each of the set of fields, and each of the set of methods having object-oriented properties. Within the class hierarchy, a set of objects is randomly generated for each of the plurality of classes. A method is selected from the sets of methods, and a set of instructions is generated for the selected method according to the instruction table and the weighting table using the class hierarchy.

38 Claims, 10 Drawing figures

Exemplary Claim Number: 3

Number of Drawing Sheets: 7

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw D
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☐ 38. Document ID: US 4434436 A

L44: Entry 38 of 38

File: USPT

Feb 28, 1984

US-PAT-NO: 4434436

DOCUMENT-IDENTIFIER: US 4434436 A

TITLE: Addressable premium channel obfuscation device for cable television systems

DATE-ISSUED: February 28, 1984

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kleykamp; Gayheart C.	Ahwatukee	AZ		
Goldwater; Sam	Phoenix	AZ		
Salsbery; Charles L.	Phoenix	AZ		

US-CL-CURRENT: 380/209; 348/E7.055

ABSTRACT:

An obfuscation device for use in cable television systems includes a memory for storing a plurality of channel status bits. The state of each channel status bit corresponds to the authorization or non-authorization of a particular channel. The obfuscation device includes a circuit for selecting a number representing a frequency and a circuit for generating an obfuscation signal that randomly varies about the selected frequency. The obfuscation device uses the selected number to address a location of the memory to fetch the channel status bits corresponding to the respective residences for the channel in which the selected obfuscation frequency lies. The fetched status bits are applied at random time in a predetermined gating period to gating circuits that enable the generated obfuscation signal to be superimposed randomly, with respect to timing, on the program signal of the channel in which the obfuscation frequency lies to obfuscate the television picture received by viewers of television sets in the residences not authorized to receive the channel in which the obfuscation frequency lies.

23 Claims, 10 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 6

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstracts	References	Claims	KIMC	Draw. De
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Clear	Generate Collection	Print	Fwd Refs	Bkwd Refs	Generate OACS
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Terms	Documents
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